We claim:

1. A servopositioning system for a linear data recording system, comprising in combination:

   a) a linear data recording medium, upon which are recorded a time-based servo signal, and a timing reference signal having a bandwidth; and

   b) circuitry, separately responsive to the timing reference and time-based servo signals, for

      (i) producing position error signals by sampling the time-based servo signal at a sampling rate; and

      (ii) increasing the bandwidth of the timing reference signal above the sampling rate of (i).

2. The system of claim 1, in which the measurement time base for producing the position error signals is derived from the timing reference signal.

3. The system of claim 1, in which the timing reference signal's frequency lies in a playback null of the time-based servopositioning system.

4. The system of claim 3, in which the timing reference signal and the time-based servo signal are recorded at different azimuth angles with respect to each other.

5. The system of claim 3, in which the time-based servo signal comprises at least one sample, each sample comprising at least two pulses, the spacing between the pulses being such that the pulses fall on unique phases of the timing reference signal.

6. The system of claim 5, in which there are four pulses in each sample, each of the four pulses falling ninety degrees out of phase with each other, and a first pulse falling on a zero degree phase of the timing reference signal.

7. The system of claim 1, in which the timing reference signal further comprises a side band amplitude modulated component.

8. The system of claim 7, in which the timing reference signal further comprises a double side band amplitude modulated component.

9. The system of claim 7, in which the modulated component comprises at least one of linear position data, manufacturing data, synchronization data, error detection data, error correction data, and encoded data.

10. A method of servopositioning for use with a data recording system, comprising:

a) writing on a linear data recording medium a time-based servo signal, and a timing reference signal having a bandwidth;

b) producing position error signals by sampling the time-based servo signal at a sampling rate; and

c) increasing the bandwidth of the timing reference signal above the sampling rate.

11. The method of claim 10, further comprising deriving the measurement time base for producing the position error signals from the timing reference signal.

12. The method of claim 10 in which writing the timing reference signal comprises writing an AC frequency that lies in a playback null of the time-based servopositioning system.

13. The method of claim 12, in which the writing comprises writing the timing reference signal and the time-based servo signal at different azimuth angles with respect to each other.

14. The method of claim 12, in which the time-based servo signal comprises at least one sample, each sample comprising at least two pulses, the spacing between the pulses being such that the pulses fall on unique phases of the timing reference signal.

15. The method of claim 14, in which there are four pulses in each sample, each of the four pulses falling ninety degrees out of phase with each other, and a first pulse falling on a zero degree phase of the timing reference signal.

16. The method of claim 10, in which the writing further comprises writing a side band amplitude modulated component in the timing reference signal.

17. The method of claim 16, in which the writing further comprises writing a double side band amplitude modulated component in the timing reference signal.

18. The method of claim 16, in which the writing further comprises writing in the modulated component at least one of linear position data, manufacturing data, synchronization data, error detection data, error correction data, and encoded data.